

DRAFT

RIR-01 REPORT FORMAT for Initial Remedial Investigation at a Petroleum Release Site

(This format may be appropriate for reporting initial site assessment information at a petroleum release site.)

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised June 4, 2003)

The following outline provides owner/operators and consultants with basic information that a **Remedial Investigation Report at a Petroleum Release Site** must contain before it will be reviewed by PRS.

A Remedial Investigation Report is required to determine the extent and magnitude of contamination associated with a petroleum release and to evaluate the risk it poses to human health and the environment. The PRS project manager will use professional judgment to determine what types of investigations or information gathering is necessary to adequately evaluate risk. The report format listed herein includes most of the typical technologies that may be required as part of a remedial investigation. Not all of these sections may be required for individual release sites. When sections of this report format are not included in the remedial investigation, omit those sections and make a brief annotation in the report that they were not required.

Following the collection and analysis of field data, it may become apparent that additional investigation will be required to determine the full extent and magnitude of contamination and to evaluate the risk it poses to human health and the environment. Additional investigations may be required to gather this additional information and to complete the remedial investigation. When this occurs, additional information should be included in separate followup reports.

The following is an example of minimal requirements for a Remedial Investigation Report. If any of the topics do not apply to your situation, please omit the section and provide an explanation in the report.

1. TITLE PAGE

- 1.1 Title of report ["Initial Remedial Investigation for..."]
- 1.2 Facility name.
- 1.3 Facility address.
- 1.4 DEQ Facility ID Number and Release Number.
- 1.5 Responsible parties name, mailing address and phone number.
- 1.6 Consultant's name, address and phone number.
- 1.7 Contact persons name, mailing address and phone number (if different from above).

1.8 Date report prepared.

2. EXECUTIVE SUMMARY

2.1 Executive summary of the report that highlights the significant methods of investigation, findings, conclusions, and recommendations of the investigation.

3. TABLE OF CONTENTS

3.1 Includes titles of report sections and page numbers (please use naming/numbering methodology for main sections listed herein).

3.2 Lists of tables and figures.

3.3 List of appendices.

4. INTRODUCTION

4.1 Purpose of investigation [“To gather adequate information to determine known and potential risks posed to human health and the environment from Release #___”].

4.2 When, how, and by whom contamination was discovered.

4.3 Type of contamination.

4.4 When and who reported to DEQ.

4.5 Initial actions undertaken by owner, contractor, consultant, other.

5. SITE HISTORY (if completed)

5.1 History of the ownership and operation of the facility, since at least the time at which the release from the tank could have occurred, including the following:

5.1.1 The name, current address and telephone number of all current owners and operators;

5.1.2 The name, current address and telephone number (if known) of all past owners and operators,

5.1.3 The years of current and past ownership and/or operation,

5.1.4 A description of the activities conducted at the site by each current and past owner/operator,

5.1.5 A general construction history of the site,

5.1.6 Former and existing hazardous material/waste storage areas, lagoons and waste pits, and

5.1.7 Waste management history.

5.2 History of operation of ASTs and USTs since at least the time at which the release from the tank did or could have occurred at the site, including the following (some or all of this information may be presented in tabular form):

5.2.1 Dates of installation and removal of all existing and former tanks located on the site,

5.2.2 Volume of tank(s),

5.2.3 Tank and piping construction material,

5.2.4 Tank configuration, piping layout, check valves,

5.2.5 Overfill/spill protection,

5.2.6 Cathodic protection,

- 5.2.7 Date and description of repairs, replacements, modifications to tanks and ancillary,
 - 5.2.8 Condition of tank(s)/piping if removed, location and size of perforations,
 - 5.2.9 Method and results of product inventory reconciliation (describe and attach copies of product inventory charts).
- 5.3 A description of all known and suspected leaks, spills, overfills or other releases from the UST, ASTs, and any other petroleum sources located on the site. The following information should be included for each occurrence:
- 5.3.1 Date of release,
 - 5.3.2 Date release was reported to the department,
 - 5.3.3 Type of product(s) released,
 - 5.3.4 Quantity released,
 - 5.3.5 Quantity recovered,
 - 5.3.6 Known or suspected cause of the release,
 - 5.3.7 Location of the release on the site,
 - 5.3.8 Cleanup action taken, and
 - 5.3.9 Offsite effects.

6. MAPS AND SITE TECHNICAL INFORMATION

- 6.1 Facility site map or maps and descriptions or symbols appropriate in scale and scope showing the following within a 500 foot (unless otherwise noted) radius of the site (information may be shown on more than one map for clarity):
- 6.1.1 Existing and former USTs, ASTs, piping, dispensers, and other sources of petroleum,
 - 6.1.2 Soil boring, test pit, or other sample locations (if completed),
 - 6.1.3 Locations of any other environmental samples collected,
 - 6.1.4 Monitoring wells (if completed),
 - 6.1.5 Recovery wells (if completed),
 - 6.1.6 Other remediation equipment (if installed),
 - 6.1.7 Underground utilities on and adjacent to the property (sewer, water, telephone, electric),
 - 6.1.8 Above ground utilities (overhead wires)
 - 6.1.9 Basements and tile drain and sump systems on the facility and adjacent to the property,
 - 6.1.10 Existing and former hazardous material/waste storage areas,
 - 6.1.11 Adjacent buildings (structures),
 - 6.1.12 Domestic, municipal and irrigation wells.
- 6.2 Local map (2-3 city block area) showing utilities, residences, wells, business or building use (children's nursery or machine shop?), potential third parties depending on contamination type, property lines, magnitude and extent of soil and groundwater contamination.
- 6.3 Topographic map of site and surrounding area.
- 6.3.1
- 6.4 Surface water technical information and map(s), including:
- 6.4.1 Location and use of all surface water within 1 mile of site,

- 6.4.2 Groundwater/surface water discharge points,
- 6.4.3 Sampling description,
- 6.4.4 Results of laboratory analysis.
- 6.5 Site map showing the aerial extent of free product based on subsurface investigatory methods (e.g. monitoring wells, soil borings, direct push technology).
- 6.6 Location, ownership, use and construction of all municipal, domestic, irrigation, industrial and monitoring wells within ½ mile of the site,

7. RECEPTOR SURVEY

- 7.1 Identification of all potential receptors in the area of contamination and possible migration.
 - 7.1.1 Drinking water
 - 7.1.1.1.Groundwater wells
 - 7.1.1.2.Permeable water mains
 - 7.1.1.3.Permeable water service connections
 - 7.1.2 Vapors in structures
 - 7.1.2.1.Residences/public buildings
 - 7.1.2.2.Utility vaults
 - 7.1.2.3.Commercial buildings
 - 7.1.3 Direct dermal contact with surface soil (< 2ft bgs)
 - 7.1.3.1.Residential property
 - 7.1.3.2.Commercial property
 - 7.1.3.3.Recreational property
 - 7.1.4 Buried utilities
 - 7.1.4.1.Open utilities (water, sewer,...)
 - 7.1.4.2.Close utilities (phone, power,...)
 - 7.1.5 Surface water
 - 7.1.5.1.Lakes, rivers, ponds
 - 7.1.5.2.Wetlands
 - 7.1.5.3.Storm sewers
 - 7.1.6 Groundwater (not used for drinking, but protected as 'state water')
 - 7.2 Migration Pathway Identification
 - 7.2.1 [Identify all pathways that may be completed from the contamination source to all potential receptors identified 1. Include one sub-section for each identified receptor.]
 - 7.3 Exposure Potential Discussion
8. [Evaluate potential for pathways identified in Sub-Section 7.2 to be complete. Include one sub-section for each pathway identified in Sub-Section 7.2.]

9. EXTENT AND MAGNITUDE OF CONTAMINATION

- 9.1 Describe evidence of releases of petroleum to the environment including visual and olfactory evidence, results of field screening, laboratory analysis and historical knowledge.
- 9.2 Types, concentrations and volumes (if applicable) of all released petroleum and hazardous material detected to date at the facility.

- 9.3 Analytical results for each media sampled shall be summarized in the text and in tables in the body of the report.
- 9.4 Information and details on the approximate horizontal and vertical extent of soil contamination, on-site and off-site, based on best available information.
- 9.5 Information and details on the approximate horizontal and vertical extent of free-phase petroleum, on-site and off-site, based on best available information.
- 9.6 Information and details on the approximate horizontal and vertical extent of petroleum vapors, on-site and off-site, based on best available information.

10. SOIL INVESTIGATION (if completed)

- 10.1 Description of soil investigation
 - 10.1.1 Description of methods (backhoe pits, borings and monitoring well installation, vapor sampling, heated headspace sampling, and other field screening methods). A separate description should be described for each method used,
 - 10.1.2 QA/QC plan (may be on file at DEQ),
 - 10.1.3 Detailed sampling plans and construction techniques may be referenced and placed in appendices or in standard operating plan (SOP) submitted to DEQ and on file,
- 10.2 Description of soil from test pits, boring completion, or other sample retrieval methods,
- 10.3 Field screening results (visual, odors, and vapor survey results) in tabular form with date and time of measurement, depth, location, penetration measurement if taken; time-series graphs and tables if more than one sampling period,
- 10.4 Isopleths of concentrations shown on map, possible cross-section of sampling results, if samples taken from more than one depth,
- 10.5 Groundwater sampling results (if encountered and sampled from excavation/borings; this information may be included in groundwater investigation section),
- 10.6 Depth to water and water table elevation measurements (if encountered in excavation/borings; this information may be included in groundwater investigation section),
- 10.7 Soil type, thickness, and classification below the site of the release,
- 10.8 Unconsolidated material and bedrock type, thickness, and formation name below the site of the release,
- 10.9 Soil characteristics (grain size, sorting, origin, texture, permeability, classification),
- 10.10 Boring logs and monitoring well logs (contaminant screening levels, sediment olfactory observations and vapor readings, and blow count),
- 10.11 Geologic cross-section from boring/excavation information (if applicable),
- 10.12 Soil sample analytical results (presented in tabular form),
- 10.13 Vertical extent of contamination (Include updated soil contamination extent and magnitude map, if applicable).
- 10.14 Discussion of sampling or analytical anomalies.

11. GROUNDWATER INVESTIGATION (if completed)

- 11.1 Description of groundwater investigation

- 11.1.1 Description of methods (backhoe pits, borings and monitoring well installation, vapor sampling, heated headspace sampling, and other field screening methods). A separate description should be described for each method used,
- 11.1.2 QA/QC plan (may be on file at DEQ),
- 11.1.3 Detailed sampling plans and construction techniques may be referenced and placed in appendices or in standard operating plan (SOP) submitted to DEQ and on file.
- 11.2 General description and characteristics of aquifers and unsaturated zone below the site of the release, including:
 - 11.2.1 Hydraulic characteristics,
 - 11.2.2 Depth to water table (multiple measurements should be presented in a tabular format),
 - 11.2.3 Surveyed water elevations and contours (potentiometric surface),
 - 11.2.4 Water table piezometric surface contour map,
 - 11.2.5 Direction of groundwater flow,
 - 11.2.6 Rate of groundwater flow,
 - 11.2.7 Perched or confined aquifer conditions,
 - 11.2.8 Connections to other aquifers, and
 - 11.2.9 Hydrologic cross sections.
- 11.3 Description of monitoring well, or sampling point completion (description of well, well construction methods, well construction or completion diagram).
- 11.4 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken; time-series graphs and tables if more than one sampling period.
- 11.5 Results of laboratory analysis (multiple measurements should be presented in a tabular format).
- 11.6 Isopleth (iso-concentration) map depicting at least one analyte for each contaminant type (gasoline, diesel...etc.) that best depicts the extent and magnitude of that contaminant. Consult PRS project manager for selection of analytes depicted.
- 11.7 Discussion of sampling or analytical anomalies

12. SOIL VAPOR SAMPLING/MONITORING RESULTS (if completed)

- 12.1 Description of vapor investigation
 - 12.1.1 Description of methods used to evaluate potential migration of petroleum vapors into utilities or structures. A separate description should be described for each method used.
 - 12.1.2 QA/QC plan (may be on file at DEQ).
 - 12.1.3 Detailed sampling plans and construction techniques may be referenced and placed in appendices or in standard operating plan (SOP) submitted to DEQ and on file.
 - 12.1.4 Vapor measuring instrument calibration data.
 - 12.1.5 Type instrument(s) used for vapor measurements.
- 12.2 Weather conditions during collection of vapor readings.
- 12.3 Detailed site map vapor sampling locations.

- 12.4 Description of surface and subsurface structures that may influence the migration of vapors through the soil.
- 12.5 Description of soil vapor sampling points and soil conditions recorded during driving of sampling points (if taken).
- 12.6 Field observations made during sampling.
- 12.7 Field screening, qualitative, or quantitative results in table form with date and time of measurement, depth, location, and penetration measurement if taken.
- 12.8 Groundwater sampling results (if encountered and sampled from vapor sampling points; This information may be included in groundwater investigation section).
- 12.9 Depth to water and water table elevation measurements (if encountered in sampling points).
- 12.10 Geologic cross-section from borings/excavations showing vapor concentrations (if applicable).
- 12.11 Isopleths of concentrations shown on map, possible cross-section of sampling results if samples taken from more than one depth.
- 12.12 Map(s) showing the extent of free product, dissolved groundwater phase, and vapors discovered in basements and other subsurface structures and utilities.
- 12.13 Map(s) showing all structures and subsurface utilities present near the site that are, or may become, impacted by petroleum vapors associated with the release.
- 12.14 An evaluation of the potential for petroleum vapors to migrate into structures and subsurface utilities. Including calculations on vapor migration potential under existing site conditions.
- 12.15 Discussion of sampling or analytical anomalies.

13. STRUCTURE VAPOR SAMPLING (if completed)

- 13.1 Description of vapor investigation
 - 13.1.1 Description of methods used to evaluate potential migration of petroleum vapors into utilities or structures. A separate description should be described for each method used.
 - 13.1.2 QA/QC plan (may be on file at DEQ).
 - 13.1.3 Detailed sampling plans and construction techniques may be referenced and placed in appendices or in standard operating plan (SOP) submitted to DEQ and on file.
 - 13.1.4 Vapor measuring instrument calibration data.
 - 13.1.5 Type instrument(s) used for vapor measurements.
- 13.2 Weather conditions during collection of vapor readings.
- 13.3 Vapor sample locations shown on map.
- 13.4 Detailed site map vapor sampling locations with respect to petroleum contamination (soil, free product, groundwater, and soil vapors) to the extent known.
- 13.5 Description of surface and subsurface structures that may influence the migration of vapors through the soil.
- 13.6 Description of structure vapor sampling points and other conditions within structures that may influence sampling result.
- 13.7 Field observations made during sampling. Inventory of petroleum products stored in or near each structure sampled.

- 13.8 Field screening, qualitative, or quantitative results in table form with date and time of measurement.
- 13.9 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken; time-series graphs and tables if more than one sampling period.
- 13.10 Measurements/samples collected to measure for the presence of vapors within utilities or structures.
- 13.11 An evaluation of the potential for petroleum vapors to migrate into structures and subsurface utilities. Including calculations on vapor migration potential under existing site conditions.
- 13.12 Discussion of sampling or analytical anomalies

14. UTILITY INVESTIGATION (if completed)

- 14.1 Description of utility investigation
 - 14.1.1 Description of methods used to evaluate potential for petroleum (free phase, dissolved phase, and vapors) to impact buried utilities. (backhoe pits, borings and monitoring well installation, vapor sampling, heated headspace sampling, and other field screening methods). A separate description should be described for each method used.
 - 14.1.2 QA/QC plan (may be on file at DEQ).
 - 14.1.3 Detailed sampling plans and construction techniques may be referenced and placed in appendices or in standard operating plan (SOP) submitted to DEQ and on file.
- 14.2 Detailed site map of buried utilities and service connections showing soil contamination and investigation points.
- 14.3 Description of utility construction materials (including gaskets), bedding materials, and any other information pertinent to contaminant permeation or migration.
- 14.4 Description of test pits, boring completion, or other utility excavation/inspection.
- 14.5 Field observations of utility construction, contamination present, and condition of utilities. Include any other observations pertinent to contaminant permeation or migration.
- 14.6 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken.
- 14.7 Soil sample results.
- 14.8 Groundwater sampling results (if encountered and sampled from excavation/borings).
- 14.9 Depth to water and water table elevation measurements (if encountered in excavation/borings).
- 14.10 Geologic cross-section from borings/excavations showing utility corridors in relation to contamination (if applicable).
- 14.11 Observations, field screening data, and sample results from material inside utilities (vapors, water, gas...). (if sampled)
- 14.12 Discussion of sampling or analytical anomalies.

15. OTHER DATA RESULTS (if completed)

- 15.1 Initial landfarming information (see DEQ landfarming application form) including location map, property ownership, identity of party responsible for tilling and testing,

slope of land, soil type, clay content, depth to groundwater, surface water locations, potential environmentally sensitive receptors, nearby residences, present land use and surrounding land use, contaminated (estimated or actual) soil quantity, contaminant concentrations, tilling equipment to be used, tilling intervals, sampling tests and intervals, permits required, stockpiling, berming, cover, local contacts.

16. MIGRATION PATHWAYS AND EXPOSURE POTENTIAL (if completed)

- 16.1 Evidence of and the potential for petroleum and/or hazardous material migration pathways by air, soil, groundwater, surface water, sediments and subsurface utility lines.
- 16.2 Identification and initial evaluation of known and potential human exposure to petroleum and hazardous material present at the facility by inhalation, dermal contact or ingestion of contaminants.
 - 16.2.1 Drinking water from well.
 - 16.2.2 Drinking water from public supply (well contaminated or pipe permeated).
 - 16.2.3 Vapors migrating inside or damaging buried utility.
 - 16.2.4 Vapors migrating into structure
 - 16.2.5 Direct dermal contact with surface (<2ft bgs) contamination.

17. DISCUSSION and EVALUATION

- 17.1 Technical conclusions and recommendations, which must be stated with reasonable professional certainty and under the standard of care applicable, must include at least a discussion of the following:
 - 17.1.1 Source of the release;
 - 17.1.2 Current extent of and potential for the release to migrate (determined with field or laboratory analytical detection equipment) in or through the following media:
 - 17.1.2.1. Soil; lateral and vertical extent of fuel-soaked soil;
 - 17.1.2.2. Water; dissolved phase (water soluble constituents);
 - 17.1.2.3. Air (vapor phase); and
 - 17.1.3 Aerial extent of free product and the potential for free product to migrate.
- 17.2 Contamination of soil, groundwater, air; discussion of analytical results, direction of transport, potential receptors of contamination (including utility corridors) from each medium, known, probable and possible impacts to human health and environment from contaminated soil, groundwater, vapors.

18. CONCLUSIONS

- 18.1 Summarize extent and magnitude of contamination.
- 18.2 Threats to human health and the environment (present and potential).
- 18.3 Discussion of Sampling results in comparison to regulatory standards and screening levels.
- 18.4 Discussion of vertical extent of soil contamination and potential for future leaching to groundwater.
- 18.5 Discussion of fate and transport of contaminants from known and suspected sources.

13. RECOMMENDATIONS

- 13.1 Additional data collection, next phase of investigation (corrective action, second phase of remedial investigation, ongoing groundwater monitoring, no further action)
- 13.2 Immediacy of corrective action if required.
- 13.3 Projected future monitoring needs, and justification for all other work proposed for the site.
- 13.4 Signature page (signed and dated).

14. LIMITATIONS

15. REFERENCES

16. APPENDICES (include only those that apply)

- 16.1 Sampling methods.
- 16.2 Boring logs.
- 16.3 Well completion logs.
- 16.4 Vapor logs.
- 16.5 Field data sheets.
- 16.6 Other logs.
- 16.7 Sampling summary tables, which clearly identify by the date on which the samples were taken, all of the following: sample ID#, sampling location, sample type, date analyzed, laboratory conducting the analysis, analytical method, and results of the analysis.
- 16.8 Laboratory reports that include:
 - 16.8.1 original, or copy of original, sample concentration reports;
 - 16.8.2 chain of custody documentation;
 - 16.8.3 sample receipt checklist(s);
 - 16.8.4 quality assurance/quality control report(s); and
 - 16.8.5 chromatograms.
- 16.9 Other data.
- 16.10 EPA notification forms.
- 16.11 QA/QC Plan (unless on file with DEQ) SOP plan (unless on file with DEQ).

Note: Throughout the process of investigation and remediation of a release from an underground storage tank, many reports will be prepared and submitted to the regulatory agency. Basic reports that will be required on most sites include Site Investigation Reports and Groundwater Monitoring Summary Reports.

The DEQ-PRS requires a certain amount of detail in these reports. A large amount of this detail is duplicated from report to report. The facility location, geology, hydrogeology and sampling protocols should not change significantly. Certain sections of some reports may be excerpted from other reports with little or no modification (e.g., sampling protocol followed for drilling or groundwater sampling, QA/QC procedures, etc.). The tables and maps need to be updated if they include new data, but no major changes are normally needed. The appendices of the document may be from other sources (e.g., sample results from the laboratory) or duplicates (e.g., standard sampling protocol followed. Once a Remedial Investigation Report is prepared for a site, subsequent reports should take less time, effort and cost to prepare.

DRAFT

SAR-00

REPORT FORMAT

INITIAL SITE ASSESSMENT

for a Petroleum Release Site

This should be used as a base format to report all initial site information.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised August 6, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of an Initial Site Assessment Report when specifically requested by the department. This 'base report' will be used to report all information developed during the site assessment process and may include one or more types of investigations. If any of the topics do not apply to your situation, please omit the section.

This report format should be used for all initial site assessment reports. Section 7 (Investigation Results) and Section 8 (Conclusions) should include specific information for the specific type of initial site assessment investigation(s) completed. Reporting formats to be used in sections 7 and 8 are outlined in reporting formats

1. TITLE PAGE

- 1.1 Title of report [Initial Site Assessment for...]
- 1.2 Facility name.
- 1.3 Facility address.
- 1.4 DEQ Facility ID Number and Release Number.
- 1.5 Responsible parties name, mailing address and phone number.
- 1.6 Consultant's name, address and phone number.
- 1.7 Contact person's name, mailing address and phone number (if different from above).
- 1.8 Date report prepared.

2. EXECUTIVE SUMMARY

- 2.1 Summarizes release information, results of the investigation, conclusions and recommendations.

3. TABLE OF CONTENTS

- 3.1 Includes titles of report sections and page numbers (please use naming/numbering methodology for main sections listed herein).
- 3.2 List of tables and figures.
- 3.3 List of appendices.

4. INTRODUCTION

- 4.1 Purpose of investigation ["To gather adequate information to determine known and potential risks posed to human health and the environment from Release # ____"].

4.2 Brief Background of release.

5. INVESTIGATIVE METHODS

- 5.1 Description of methods (backhoe pits, borings and monitoring well installation, vapor sampling, heated headspace sampling, and other field screening methods). A separate description should be described for each method used.
- 5.2 QA/QC plan (may be on file at DEQ).
- 5.3 A detailed sampling plan and construction techniques may be referenced and placed in appendices or in standard operating plan (SOP) submitted to DEQ and on file.

6. FACILITY SITE MAP (if requested by PRS project manager as part of report)

Facility site map or maps and descriptions or symbols appropriate in scale and scope showing the following within a 500 foot (unless otherwise noted) radius of the site (information may be shown on more than one map for clarity):

- 6.1 Buildings (on and adjacent to site),
- 6.2 Existing and former USTs, ASTs, piping, dispensers, and other sources of petroleum,
- 6.3 Release area or greatest source of contamination,
- 6.4 Known extent of contamination (use dashed lines where unsure),
- 6.5 Soil boring, test pit, or other sample locations (if completed),
- 6.6 Monitoring well locations (if completed),
- 6.7 Underground utilities on and adjacent to the property (sewer, water, telephone, electric) [must be completed before excavation or drilling],
- 6.8 Basements and tile drain and sump systems on and adjacent to the property,
- 6.9 Existing and former USTs, ASTs, piping, dispensers, and other sources of petroleum
- 6.10 Adjacent buildings (structures),
- 6.11 Domestic, municipal and irrigation wells,
- 6.12 Existing and former hazardous material/waste storage areas.

7. INVESTIGATIVE RESULTS

Expand this section to report all investigation results conducted under direction from PRS project manager for an initial site assessment. Specific information reported in this section is discussed in detailed format sections focusing on the particular type(s) of investigation performed. Please see the following formats for the type of information to be reported:

<u>SAR-01</u>	Initial Site History
<u>SAR-02</u>	Receptor/exposure pathway evaluation
<u>SAR-03</u>	Groundwater check (1 well/sampling point)
<u>SAR-04</u>	Groundwater investigation (≤ 4 wells)
<u>SAR-05</u>	Soil investigation (TP, borings, direct push...etc.)
<u>SAR-06</u>	Utility/utility corridor investigation
<u>SAR-07</u>	Soil vapor survey
<u>SAR-08</u>	Building/structure vapor survey

8. CONCLUSIONS

Same comment as for Section 7.

9. RECOMMENDATIONS

- 9.1 Recommend release for closure, or
- 9.2 Additional data collection, and Immediacy of corrective action if required.
- 9.3 Signature page (signed and dated).

10. LIMITATIONS

11. REFERENCES

12. APPENDICES (include only those that apply)

- 12.1 Sampling methods.
- 12.2 Boring logs.
- 12.3 Well completion logs.
- 12.4 Vapor logs.
- 12.5 Field data sheets.
- 12.6 Other logs.
- 12.7 Analytical results and chain of custody forms.
- 12.8 Other data.
- 12.9 EPA notification forms.
- 12.10 QA/QC Plan (unless on file with DEQ) SOP (unless on file with DEQ).

DRAFT

SAR-01

INITIAL SITE ASSESSMENT REPORT FORMAT for

Initial Site History

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of an Initial Site History Report when specifically requested by the department. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, please omit the section.

The following is an example of minimal requirements for a typical Initial Site History Report. If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

1. TITLE PAGE

[see Initial Site Assessment base Report Format]

2. EXECUTIVE SUMMARY

[see Initial Site Assessment base Report Format]

3. TABLE OF CONTENTS

[see Initial Site Assessment base Report Format]

4. INTRODUCTION

[see Initial Site Assessment base Report Format]

5. INVESTIGATIVE METHODS

[see Initial Site Assessment base Report Format]

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. Initial Site History

- 7.1 When and who reported to DEQ.
- 7.2 Initial actions undertaken by owner, contractor, consultant, other.
- 7.3 Local map (2-3 city block area) showing utilities, residences, wells, business or building use (children's nursery or machine shop?), potential third parties depending on contamination type, property lines, magnitude and extent of soil and groundwater contamination.
- 7.4 Topographic map of site and surrounding area.

- 7.5 History of the ownership and operation of the facility, since at least the time at which the release from the tank did or could have occurred, including the following:
 - 7.5.1 The name, current address and telephone number of all current owners and operators,
 - 7.5.2 The name, current address and telephone number (if known) of all past owners and operators,
 - 7.5.3 The years of current and past ownership and/or operation,
 - 7.5.4 A description of the activities conducted at the site by each current and past owner/operator,
 - 7.5.5 A general construction history of site,
 - 7.5.6 Former and existing hazardous material/waste storage areas, lagoons and waste pits, and
 - 7.5.7 Waste management history.
- 7.6 History of operation of ASTs and USTs since at least the time at which the release from the tank did or could have occurred at the site, including the following (some or all of this information may be presented in tabular form):
 - 7.6.1 Dates of installation and removal of all existing and former tanks located on the site,
 - 7.6.2 Volume of tank(s),
 - 7.6.3 Tank and piping construction material,
 - 7.6.4 Tank configuration, piping layout, check valves,
 - 7.6.5 Overfill/spill protection,
 - 7.6.6 Cathodic protection,
 - 7.6.7 Date and description of repairs, replacements, modifications to tanks and ancillary,
 - 7.6.8 Condition of tank(s)/piping if removed, location and size of perforations,
 - 7.6.9 Method and results of product inventory reconciliation (describe and attach copies of product inventory charts).
- 7.7 A description of all known and suspected leaks, spills, overfills or other releases from the UST, ASTs, and any other petroleum sources located on the site. The following information should be included for each occurrence:
 - 7.7.1 Date of release,
 - 7.7.2 Date release was reported to the department,
 - 7.7.3 DEQ release number (if assigned),
 - 7.7.4 Product released,
 - 7.7.5 Quantity lost,
 - 7.7.6 Quantity recovered,
 - 7.7.7 Known or suspected cause of the release,
 - 7.7.8 Location on site,
 - 7.7.9 Cleanup action taken, and
 - 7.7.10 Offsite effects.

8. CONCLUSIONS

- 8.1 Discussion of site history and release information on potential to impact human health or the environment.

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]

DRAFT

SAR-02

INITIAL SITE ASSESSMENT REPORT FORMAT for

Receptor Survey and Migration Pathway Evaluation

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of a Receptor Survey and Migration Pathway Evaluation Report when specifically requested by the department. If any of the topics do not apply to your situation, please omit the section. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

An Initial Receptor Survey should identify all known and potential receptors to contamination posed by the petroleum release under study. It is intended to use existing environmental data, and to identify what additional information is necessary to establish more certain risk evaluations.

1. TITLE PAGE

[see Initial Site Assessment base Report Format]

2. EXECUTIVE SUMMARY

[see Initial Site Assessment base Report Format]

3. TABLE OF CONTENTS

[see Initial Site Assessment base Report Format]

4. INTRODUCTION

[see Initial Site Assessment base Report Format]

5. INVESTIGATIVE METHODS

[see Initial Site Assessment base Report Format]

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. RECEPTOR SURVEY

- 7.1 Receptor Identification
 - 7.1.1 Drinking water
 - 7.1.1.1 Groundwater wells

- 7.1.1.2. Permeable water mains
 - 7.1.1.3. Permeable water service connections
 - 7.1.2 Vapors in structures
 - 7.1.2.1. Residences/public buildings
 - 7.1.2.2. Utility vaults
 - 7.1.2.3. Commercial buildings
 - 7.1.3 Direct dermal contact with surface soil (< 2ft bgs)
 - 7.1.3.1. Residential property
 - 7.1.3.2. Commercial property
 - 7.1.3.3. Recreational property
 - 7.1.4 Buried utilities
 - 7.1.4.1. Open utilities (water, sewer,...)
 - 7.1.4.2. Close utilities (phone, power,...)
 - 7.1.5 Surface water
 - 7.1.5.1. Lakes, rivers, ponds
 - 7.1.5.2. Wetlands
 - 7.1.5.3. Storm sewers
 - 7.1.6 Groundwater (not used for drinking, but protected as 'state water')
- 7.2 Migration Pathway Identification
 - 7.2.1 [Identify all pathways that may be completed from the contamination source to all potential receptors identified in Sub-Section 7.1. Include one sub-section for each identified receptor.]

7.3 Exposure Potential Discussion

[Evaluate potential for pathways identified in Sub-Section 7.2 to be complete. Include one sub-section for each pathway identified in Sub-Section 7.2.]

8. CONCLUSIONS

- 8.1 Summarize known and potential completed exposure pathways. [Discuss eliminated pathways and pathways that still may be completed. Include level of certainty to any conclusions.]
- 8.2 Summarize known and potential threats to human health and the environment.

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]

DRAFT

SAR-03

INITIAL SITE ASSESSMENT REPORT FORMAT for

Groundwater Check

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of a Groundwater Check Report when specifically requested by the department. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, please omit the section. If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

A Groundwater Check is typically utilized to evaluate whether soil contamination has migrated to groundwater at hydrologically simple sites with a low to medium probability of impact. It typically includes the installation of one groundwater sampling point at, or within ___ feet of each known contamination source, or immediately down-gradient from several closely-spaced minor sources; and sampling of the most shallow groundwater through a high and low seasonal water table conditions. Acceptable groundwater sampling points may include monitor wells, direct-push sampling points, piezometers, and test pits depending on site conditions.

Note: If all buried utilities have not been previously identified they must be identified as part of this CAP and report prior to any excavation or drilling activities.

- 1. TITLE PAGE**
[see Initial Site Assessment base Report Format]
- 2. EXECUTIVE SUMMARY**
[see Initial Site Assessment base Report Format]
- 3. TABLE OF CONTENTS**
[see Initial Site Assessment base Report Format]
- 4. INTRODUCTION**
[see Initial Site Assessment base Report Format]
- 5. INVESTIGATIVE METHODS**
[see Initial Site Assessment base Report Format]
- 6. FACILITY SITE MAP**

[see Initial Site Assessment base Report Format]

7. DRILLING/EXCAVATING AND GROUNDWATER SAMPLING RESULTS

- 7.1 Description of monitoring well, or sampling point completion.
- 7.2 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken; time-series graphs and tables if more than one sampling period.
- 7.3 Soil sample results from sampling point construction (vertical extent of contamination)
- 7.4 Groundwater sampling results.
- 7.5 Drilling or sampling anomalies.

8. CONCLUSIONS

- 8.1 Discussion of Sampling results in comparison to regulatory standards and screening levels.
- 8.2 Discussion of vertical extent of soil contamination and potential for future leaching to groundwater.

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]

DRAFT

SAR-04

INITIAL SITE ASSESSMENT REPORT FORMAT for

Groundwater Investigation

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of a Initial Groundwater Investigation Report when specifically requested by the department. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, please omit the section. If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

A Initial Groundwater Investigation is typically utilized to evaluate whether soil contamination has migrated to groundwater at sites with a low to high probability of groundwater impact, or where a beneficial use may be derived from groundwater. It typically includes the installation of three to four groundwater monitor wells constructed to adequate standards and four quarterly sampling/monitoring events. The Initial Groundwater Investigation Report should be completed following the first sampling event. The PRS project manager will direct requirements for follow-on sampling reports.

Note: If all buried utilities have not been previously identified they must be identified as part of this CAP and report prior to any excavation or drilling activities.

- 1. TITLE PAGE**
[see Initial Site Assessment base Report Format]
- 2. EXECUTIVE SUMMARY**
[see Initial Site Assessment base Report Format]
- 3. TABLE OF CONTENTS**
[see Initial Site Assessment base Report Format]
- 4. INTRODUCTION**
[see Initial Site Assessment base Report Format]
- 5. INVESTIGATIVE METHODS**
[see Initial Site Assessment base Report Format]

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. DRILLING/EXCAVATING AND GROUNDWATER SAMPLING RESULTS

- 7.1 Description of monitoring well, or sampling point completion.
- 7.2 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken; time-series graphs and tables if more than one sampling period.
- 7.3 Soil sample results from sampling point construction (vertical extent of contamination). Include updated soil contamination extent and magnitude map (if applicable).
- 7.4 Geologic cross-section from boring soil information (if applicable).
- 7.5 Groundwater sampling results. Tabular format.
- 7.6 Depth to water and water table elevation measurements. Tabular format.
- 7.7 Water table piezometric surface contour map.
- 7.8 Isopleth (iso-concentration) map depicting at least one analyte for each contaminant type (gasoline, diesel...etc.) that best depicts the extent and magnitude of that contaminant. Consult PRS project manager for selection of analytes depicted.
- 7.9 Discussion of sampling or analytical anomalies.

8. CONCLUSIONS

- 8.1 Discussion of Sampling results in comparison to regulatory standards and screening levels.
- 8.2 Discussion of vertical extent of soil contamination and potential for future leaching to groundwater.
- 8.3 Discussion of fate and transport of contaminants from known and suspected sources.

9. RECOMMENDATIONS

- 9.1 [see Initial Site Assessment base Report Format]

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. SOIL VAPOR SAMPLING/MONITORING RESULTS

- 7.1 Detailed site map vapor sampling locations.
- 7.2 Description of surface and subsurface structures that may influence the migration of vapors through the soil.
- 7.3 Description of soil vapor sampling points and soil conditions recorded during driving of sampling points (if taken).
- 7.4 Field observations made during sampling.
- 7.5 Field screening, qualitative, or quantitative results in table form with date and time of measurement, depth, location, penetration measurement if taken.
- 7.6 Groundwater sampling results (if encountered and sampled from vapor sampling points).
- 7.7 Depth to water and water table elevation measurements (if encountered in sampling points).
- 7.8 Geologic cross-section from borings/excavations showing vapor concentrations (if applicable).
- 7.9 Isopleth map(s) showing vapor concentrations.
- 7.10 Discussion of sampling or analytical anomalies.

8. CONCLUSIONS

[see Initial Site Assessment base Report Format]

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]

DRAFT

SAR-05

INITIAL SITE ASSESSMENT REPORT FORMAT for

Soil Investigation

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of a Initial Groundwater Investigation Report when specifically requested by the department. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, please omit the section. If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

A Initial Soil Investigation is typically utilized to determine the general location and concentrations of soil contamination; and to generally evaluate whether soil contamination is, or may in the future, impact groundwater, human health or the environment. It typically includes sampling soil at various depths to determine contaminant 'hot spots', source areas, and general extent. An initial soil investigation is not intended to fully define the extent and magnitude of contamination. Additional definition will be conducted during a remedial investigation.

1. TITLE PAGE

[see Initial Site Assessment base Report Format]

2. EXECUTIVE SUMMARY

[see Initial Site Assessment base Report Format]

3. TABLE OF CONTENTS

[see Initial Site Assessment base Report Format]

4. INTRODUCTION

[see Initial Site Assessment base Report Format]

5. INVESTIGATIVE METHODS

[see Initial Site Assessment base Report Format]

Include specific method of analyzing utility lines and utility corridors. A separate description should be described for each method used.

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. SOIL INVESTIGATION RESULTS

- 7.1 Description of soil from test pits, boring completion, or other sample retrieval methods.
- 7.2 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken.
- 7.3 Soil sample analytical results.
- 7.4 Groundwater sampling results (if encountered and sampled from excavation/borings).
- 7.5 Depth to water and water table elevation measurements (if encountered in excavation/borings).
- 7.6 Geologic cross-section from borings/excavations (if applicable).
- 7.7 Discussion of sampling or analytical anomalies.

8. CONCLUSIONS

[see Initial Site Assessment base Report Format]

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]

DRAFT

SAR-06

INITIAL SITE ASSESSMENT REPORT FORMAT for

Utility and Utility Corridor Investigation

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of a Initial Utility and Utility Corridor Investigation Report when specifically requested by the department. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, please omit the section. If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

A Initial Utility and Utility Corridor Investigation is typically utilized to evaluate whether petroleum is either adversely impacting buried utilities or is migrating along the utility corridor. Buried utilities include private well connections and septic systems. Some utilities can be degraded, permeated, or penetrated by petroleum chemicals, causing either failure of the utility itself or migration of contaminants into the material carried by the utility (i.e. drinking water). An initial utility investigation should locate all buried utilities and their service connections, and physically examine the utility trenches. Physical inspection can take place in a number of ways from boring down to retrieve a sample of the utility bedding material to completely uncovering the utility for a full inspection.

Samples may also be taken of the material within utility lines such as water in water supply lines, vapors in sewer lines, and pressurized gasses sheathing closed utility lines (i.e. nitrogen sheathing fiber optic cables.).

Note: If all buried utilities have not been previously identified they must be identified as part of this CAP and report prior to any excavation or drilling activities.

1. TITLE PAGE

[see Initial Site Assessment base Report Format]

2. EXECUTIVE SUMMARY

[see Initial Site Assessment base Report Format]

3. TABLE OF CONTENTS

[see Initial Site Assessment base Report Format]

4. INTRODUCTION

[see Initial Site Assessment base Report Format]

5. INVESTIGATIVE METHODS

[see Initial Site Assessment base Report Format]

Include specific method of analyzing utility lines and utility corridors. A separate description should be described for each method used.

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. UTILITY INVESTIGATION RESULTS

- 7.1 Detailed site map of buried utilities and service connections showing soil contamination and investigation points.
- 7.2 Description of utility construction materials (including gaskets), bedding materials, and any other information pertinent to contaminant permeation or migration.
- 7.3 Description of test pits, boring completion, or other utility excavation/inspection.
- 7.4 Field observations of utility construction, contamination present, and condition of utilities. Include any other observations pertinent to contaminant permeation or migration.
- 7.5 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken.
- 7.6 Soil sample results.
- 7.7 Groundwater sampling results (if encountered and sampled from excavation/borings).
- 7.8 Depth to water and water table elevation measurements (if encountered in excavation/borings).
- 7.9 Geologic cross-section from borings/excavations showing utility corridors in relation to contamination (if applicable).
- 7.10 Observations, field screening data, and sample results from material inside utilities (vapors, water, gas...). (if sampled)
- 7.11 Discussion of sampling or analytical anomalies.

8. CONCLUSIONS

[see Initial Site Assessment base Report Format]

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]

DRAFT

SAR-07

INITIAL SITE ASSESSMENT REPORT FORMAT for

Soil Vapor Investigation

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of a Initial Soil Vapor Investigation Report when specifically requested by the department. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, please omit the section. If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

A Initial Soil Vapor Investigation is typically utilized to evaluate whether petroleum vapors are either adversely impacting or have a potential to impact buried utilities and structures. Soil vapor investigations may also assist in locating soil and groundwater contamination. Field screening instruments, qualitative analytical methods, or quantitative laboratory methods depending on guidance from the PRS project manager may be used to measure soil vapors. Samples may also be taken as grab samples or collected over an extended period of time.

Note: If all buried utilities have not been previously identified they must be identified as part of this CAP and report prior to any excavation or drilling activities.

1. TITLE PAGE

[see Initial Site Assessment base Report Format]

2. EXECUTIVE SUMMARY

[see Initial Site Assessment base Report Format]

3. TABLE OF CONTENTS

[see Initial Site Assessment base Report Format]

4. INTRODUCTION

[see Initial Site Assessment base Report Format]

5. INVESTIGATIVE METHODS

[see Initial Site Assessment base Report Format]

Include specific method of analyzing utility lines and utility corridors. A separate description should be described for each method used.

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. SOIL VAPOR SAMPLING/MONITORING RESULTS

- 7.1 Detailed site map vapor sampling locations.
- 7.2 Description of surface and subsurface structures that may influence the migration of vapors through the soil.
- 7.3 Description of soil vapor sampling points and soil conditions recorded during driving of sampling points (if taken).
- 7.4 Field observations made during sampling.
- 7.5 Field screening, qualitative, or quantitative results in table form with date and time of measurement, depth, location, penetration measurement if taken.
- 7.6 Groundwater sampling results (if encountered and sampled from vapor sampling points).
- 7.7 Depth to water and water table elevation measurements (if encountered in sampling points).
- 7.8 Geologic cross-section from borings/excavations showing vapor concentrations (if applicable).
- 7.9 Isopleth map(s) showing vapor concentrations.
- 7.10 Discussion of sampling or analytical anomalies.

8. CONCLUSIONS

[see Initial Site Assessment base Report Format]

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]

DRAFT

SAR-08

INITIAL SITE ASSESSMENT REPORT FORMAT for

Structure Vapor Investigation

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY PETROLEUM RELEASE SECTION (PRS)
(Revised May 23, 2003)

The following outline provides owner/operators and consultants with an understanding of the minimum requirements for preparation and submittal of a Initial Structure Vapor Investigation Report when specifically requested by the department. This report information should be added to the Initial Site Assessment 'Base Report' ([SAR-00](#)). If any of the topics do not apply to your situation, please omit the section. If any of the topics do not apply to your situation, provide an explanation in the corrective action plan (CAP).

A Initial Structure Vapor Investigation is typically utilized to evaluate whether petroleum vapors are structures or buried utilities. Air samples are typically taken inside structures, but soil vapor samples may also be taken around structure foundations. Field screening instruments, qualitative analytical methods, or quantitative laboratory methods depending on guidance from the PRS project manager may be used to measure soil vapors. If field screening or qualitative sampling indicates that petroleum vapors may be present, then quantitative sampling may be required. Samples may also be taken as grab samples or collected over an extended period of time.

Note: If all buried utilities have not been previously identified they must be identified as part of this CAP and report prior to any excavation or drilling activities

1. TITLE PAGE

[see Initial Site Assessment base Report Format]

2. EXECUTIVE SUMMARY

[see Initial Site Assessment base Report Format]

3. TABLE OF CONTENTS

[see Initial Site Assessment base Report Format]

4. INTRODUCTION

[see Initial Site Assessment base Report Format]

5. INVESTIGATIVE METHODS

[see Initial Site Assessment base Report Format]

Include specific method of analyzing utility lines and utility corridors. A separate description should be described for each method used.

6. FACILITY SITE MAP

[see Initial Site Assessment base Report Format]

7. STRUCTURE VAPOR INVESTIGATION RESULTS

- 7.1 Detailed site map vapor sampling locations with respect to petroleum contamination (soil, free product, groundwater, and soil vapors) to the extent known.
- 7.2 Description of surface and subsurface structures that may influence the migration of vapors through the soil.
- 7.3 Description of structure vapor sampling points and other conditions within structures that may influence sampling result.
- 7.4 Field observations made during sampling. Inventory of petroleum products stored in or near each structure sampled.
- 7.5 Field screening, qualitative, or quantitative results in table form with date and time of measurement.
- 7.6 Discussion of sampling or analytical anomalies.

8. CONCLUSIONS

[see Initial Site Assessment base Report Format]

9. RECOMMENDATIONS

[see Initial Site Assessment base Report Format]